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What is claimed is:

A cardiac rhythm management device, comprising:
 an atrial sensing channel for generating atrial electrogram signals;

circuitry for detecting atrial senses when the atrial electrogram signal exceeds a specified threshold;

circuitry for measuring a time interval between successive atrial senses and for detecting a premature atrial contraction when the time interval meets a specified criterion; Lan IT grow off in the Harmonian way.

a ventricular pacing channel for delivering pacing pulses to a ventricle; and,

circuitry for causing a ventricular pace to be delivered only when a premature atrial contraction is detected, wherein the ventricular pace is delivered at a specified AV interval following the premature atrial contraction.

- 2. The device of claim 1 further comprising circuitry for pacing one or more heart chambers in accordance with an atrial tracking bradycardia pacing mode when no premature atrial contraction has been detected.
 - 3. The device of claim 1 wherein the specified AV interval is a late-pace value.
 - 4. The device of claim 1 wherein the specified AV interval is an early-pace value.
- 7 5. The device of claim 4 wherein the AV interval is constrained so that the ventricular pace is delivered after a specified minimum interval from the previous
 25 ventricular sense or ventricular pace.

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6. A cardiac rhythm management device, comprising:

an atrial sensing channel for generating atrial electrogram signals;

circuitry for detecting atrial senses when the atrial electrogram signal exceeds a specified threshold;

circuitry for measuring a time interval between successive atrial senses and for detecting a premature atrial contraction when the time interval meets a specified criterion;

a ventricular pacing channel for delivering pacing pulses to a ventricle;

circuitry for causing a ventricular pace to be delivered in accordance with an atrial tracking bradycardia pacing mode such that a ventricular pace is delivered at a specified AV interval following an atrial sense;

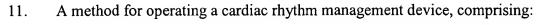
circuitry for modifying the AV interval when a premature atrial contraction is detected.

- 7. The device of claim 6 wherein the AV interval is modified to a late-pace value when a premature atrial contraction is detected.
 - 8. The device of claim 6 wherein the AV interval is modified to an early-pace value when a premature atrial contraction is detected.
 - 9. The device of claim 8 wherein the AV interval is constrained so that the ventricular pace is delivered after a specified minimum interval from the previous sensed or paced ventricular beat.
- 25 10. The device of claim 6 wherein the bradycardia pacing mode includes AV sequential pacing.

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detecting an atrial sense when an atrial electrogram signal exceeds a specified threshold;

measuring a time interval between successive atrial senses and detecting a premature atrial contraction when the time interval meets a specified criterion;

delivering a pacing pulse to a ventricle when a premature atrial contraction is detected, wherein the ventricular pace is delivered at a specified AV interval following the premature atrial contraction.

- 12. The method of claim 11 further comprising pacing one or more heart chambersin accordance with a bradycardia pacing mode when no premature atrial contraction has been detected.
- 13. The method of claim 11 wherein the specified AV interval is a late-pace value.
 - 14. The method of claim 11 wherein the specified AV interval is an early-pace value.
- 15.` The method of claim 14 wherein the AV interval is constrained so that the ventricular pace is delivered after a specified minimum interval from the previous yentricular sense or ventricular pace.
- 16. A method for operating a cardiac rhythm management device, comprising:
 detecting an atrial sense when an atrial electrogram signal exceeds a specified
 threshold;

measuring a time interval between successive atrial senses and detecting a premature atrial contraction when the time interval meets a specified criterion;

delivering pacing pulses to a ventricle in accordance with an atrial tracking bradycardia pacing mode such that a ventricular pace is delivered at a specified AV interval following an atrial sense; and,



17. The method of claim 16 wherein the AV interval is modified to a late-pace value when a premature atrial contraction is detected.

modifying the AV interval when a premature atrial contraction is detected.

- 18. The method of claim 16 wherein the AV interval is modified to an early-pace value when a premature atrial contraction is detected.
- 19. The method of claim 18 wherein the AV interval is constrained so that the ventricular pace is delivered after a specified minimum interval from the previous 10 sensed or paced ventricular beat.
 - 20. The method of claim 16 wherein the bradycardia pacing mode includes AV sequential pacing.

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